

12. They affect the temperature by first slightly lowering, and secondly increasing it.

13. They usually produce contraction of the pupil.

14. They produce an increase of the salivary secretion.

15. They induce a peculiar form of tenesmus, accompanied by a copious discharge of clear mucus from the bowels.

These conclusions have been arrived at after a careful series of experiments conducted on more than one hundred animals of different kinds; and it is extremely interesting to learn that those agents, which the different nations of the world have found by experience to produce refreshing and stimulating beverages, although unlike one another and procured from totally different sources, possess in common proximate principles, which not only are almost identical in chemical composition, but also appear similar in physiological action.

According to the above observations, cocaine has the same action as theine, etc.; so, for clinical purposes, the latter is at present preferable on account of the enormous expense of the former. That the effects of the beverages themselves are mainly, if not entirely, due to the neutral principles they contain, is highly probable; but of their beneficial action in medical practice I am not yet in a position to give an opinion. However, from their stimulant action and effect on the nervous system generally, there is every reason to hope that the concentrated forms of these drugs, or the neutral principles themselves, will prove powerful and useful agents in the hands of the physician for the treatment of disease.

Before the medical man can practise his profession scientifically, he should be acquainted, not only with the natural course of the malady he proposes to alleviate, but also with the physiological effects of the drug by which he hopes to reach this end. By observations upon the lower animals, he may also obtain suggestions and information which will materially assist him in relieving and benefiting the human being.

15. *Importance of the Purity of Chloral Hydrate.*—Dr. OSCAR LIEBREICH has recently published a paper in the *Berliner Klinische Wochenschrift*, in which he calls attention to the important subject of the purity of chloral hydrate, and the effect which its deterioration may produce on the patients to whom it is administered, and on its reputation as a remedy. The case, he says, is different from that of such a substance as quinia, the adulteration of which will only reduce, but will not pervert, the proper action of the drug. With chloral and other substances prepared by analogous chemical processes, the result of the manufacture may be the formation of compounds which, if administered, produce an altogether different result from that intended. The process of manufacture is one which requires great care; and it seems that it is at least difficult to insure the purity of chloral, if made in large quantities. Liebig himself, who discovered it, never attempted to make more than a few grammes at once; and Dr. Liebreich was so convinced, when he brought it into notice as a medicinal agent, that purity was necessary for success, that the first supplies were made under his immediate superintendence. At present, it is manufactured in various places; and the result is that, in some parts of the continent, notably in Saxony and Switzerland, it has fallen into disrepute. Dr. Liebreich has made a collection of specimens of the drug used in cases where it has failed to produce its proper action, and possesses, he says, some horrible chemical compounds which he would not venture to give to a human being. He prefers the crystallized form of chloral hydrate as the most stable. It may contain hydrochloric acid; this is no disadvantage if the proportion remain the same; but, if it increase, it indicates that the formation of dangerous compounds may be going on. Sometimes the hypnotic action is increased; this he attributes to the production of chlorine compounds, which are more readily changed into chloroform than chloral itself is. An acid reaction, arising from the formation of trichloroacetic acid, does not show that the chloral is unfit for use, though it weakens its action. In pure chloral, this action is limited; while impure chloral is liable to the constantly increasing production of acid compounds—not trichloroacetic acid—of a deleterious nature. Dr. Liebreich remarks that

the German *Pharmacopœia* is in error in fixing the boiling point of chloral hydrate at 95° Cent. (203° Fahr.). This, he says, is correct for anhydrous chloral; but the boiling point of chloral hydrate is not constant.—*Brit. Med. Journ.*, March 21, 1875.

16. *Ergotin as a Means of Arresting Hemorrhage.*—The following results obtained from some accurately recorded experiments on this drug made by Dr. DRASCHE, Chief Physician to the Rudolph Hospital, are communicated by Dr. C. Schwaighofer to the *Irish Hospital Gazette*, May 1.

It was first determined by experiment on animals, that a strong solution of ergotin when brought into contact with an artery, even when the artery was wounded, had the effect of lessening its calibre and so checking hemorrhage.

This at once led to the conjecture, that if the drug were introduced directly into the circulation, and thus brought into actual contact with the walls of the vessels, its action would be more rapid and effectual than if it entered the system through the stomach. It hence follows that the subcutaneous injection is the most effectual way of administering this remedy. As there is no preparation of ergotin in the Austrian *Pharmacopœia*, only an alcoholic extract of the *secale cornutum*, very similar, however, to the ergotin of Bonjean, the extract was the preparation used in these experiments. Glycerine proved to be the best solvent. Water was found to be not nearly so appropriate, as well from its inferior power as a solvent as because a sediment soon formed in the solution, and the undissolved resinous particles were liable to stop the needle of the injection-syringe and thus greatly increase the mechanical difficulties. Another objection to the watery solution is, that fungus soon forms in it, which at once renders it useless. A solution of 5 grains of ergotin in a drachm of glycerine proved to be the one most suitable for general use. This solution is of a dark brown colour, somewhat translucent, and even after it has stood a considerable time, the amount of sediment deposited is very small. It has another great advantage, viz., that it remains for a long time absolutely free from any fungous growth. A Pravaz's injection syringe, when filled with this solution, contains just a grain of ergotin. The effect of injecting this solution was first tried on several perfectly strong and healthy persons, with the following results: After each injection the number of heart-beats in a minute was lessened by from four to six; a diminution in the size of the arteries was demonstrated by the sphygmograph; the temperature was very slightly elevated, while the respiration remained perfectly undisturbed. The proportion between the amount of fluid imbibed within twenty-four hours and the quantity of urine passed was not affected; the appetite, digestion, and sleep also remained undisturbed. The local effects of the injection deserve notice. Generally, very soon after the injection the skin became reddened; this redness was usually circumscribed, but was sometimes diffused. The time it lasted was variable; in some cases but a very short time, in others for several days, sometimes disappearing for a short time only to return again better marked than ever. In some cases when the redness had disappeared there was left a greenish-yellow discolouration, showing the metamorphosis of the colouring matter of the blood. The redness, if very well marked, was often accompanied by increase of temperature, and pain and tenderness at the point of injection. There was, in some cases, swelling followed by induration, which lasted a considerable time; this happened more especially when the watery solution was used; indeed it was never seen to occur after glycerine. The experiments as to its hæmostatic powers were mostly made on phthisical subjects who had hæmoptysis, either after the usual means, such as ferri sesquichlor., alum, digitalis, plumb. acet., etc., had been tried in vain, or especially in cases where the hæmoptysis began as an actual hemorrhage. However, the ergotin was also tried in cases of epistaxis, hæmatemesis, hemorrhage from the bowels in enteric fever, and especially in scorbutic hemorrhages, and generally with success, even though the improvement was sometimes only transient. In cases of hæmoptysis the quantity of ergotin that was injected was from 1 to 1½ grains; in exceptional cases this was increased to 7 grains (spread over several days) which was the maximum dose. The local inflammation was always propor-